

# Important crucifer diseases

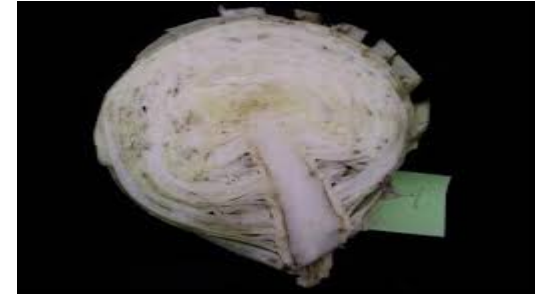
- **Black Rot**
- **Black Leg**
- **Club Root**
- **Alternaria Leaf Spot**
- **White Rust**

# Black rot (*Xanthomonas campestris* pv. *campestris*)

**Survival:** Seed or infested crop residue in soil

## **IPM practices:**

- **Cultural:** Use disease-free seed and transplants
- Use clean, disinfested containers and planting materials
- Plantings should be done where soil drainage is good.
- Fall tillage for hastening decomposition of infested residue
- Rotate fields out of crucifer crops for 3 years
- **Chemical:** Spraying fields with fixed copper bactericides may help reduce the spread of the bacteria.



# Black leg (*Phoma lingam*)

**Survival:** survive in soil and crop debris

**IPM practices:**

- **Cultural:** Use disease-free seed and transplants.
- 4-year rotation out of crucifers
- Fall ploughing reduce over-wintering pathogen population
- Avoid poorly drained fields.
- **Resistant varieties:** Grow resistant varieties.
- **Chemical:** Apply Rovral for treatment of young plants in fields prone to black leg infection.



# Club root (*Plasmodiophora brassicae*)

**Survival:** Soil

## **IPM practices:**

- **Cultural:** Prevent establishment of the pathogen in the field.
- Grow disease-free transplants.
- 7-year rotation out of crucifers,
- Adjust field soil acidity to pH 7.2-7.5.
- Control for seedbed plantings may be maintained by growing plants in a well-drained, uninfected area.
- **Chemical:** Use of PCNB (Terrachlor) in transplant water reduce disease incidence and severity.



# Alternaria Leaf Spot (*Alternaria brassicae*)

**Survival:** infected seed, transplants, or infested crop residue

## **IPM practices:**

- **Cultural:** Use disease-free plant material
- Avoiding fields with a history of the disease for 3-4 years.
- **Chemical:** Spray with Mancozeb, Benomyl can give good protection.
- **Use of resistant varieties:** Genetic resistance to this disease is not available in commercial cultivars of major crucifer crops.



# White rust (*Albugo candida*)

**Survival:** soil

**IPM practices:**

- **Cultural:** Reduce the pathogen population in the field through rotation out of cruciferous crops,
  - fall ploughing
  - good weed control.
- **Chemical:** Application of metalaxyl and mancozeb give good protection
- **Use of resistant varieties:** Resistant cultivars are available for some cruciferous crops.

